

Remarks

The application has been reviewed in light of the Official Action mailed September 8, 2005. Claim 2 has been amended. Claims 1 and 3-10 have been withdrawn. Claims 2 and 11-18 are pending in the application.

No new matter is introduced by the amendments. The amendments correspond to the matter disclosed in paragraph [00014] and figures 1-3.

The Examiner rejected claims 2, 11, 14-16 and 18 under 35 U.S.C. 102(b) as being anticipated by Hey (US 4,987,856). The Examiner rejected claims 2 and 11-15 under 35 U.S.C. 102(b) as being anticipated by Burk (US 5,788,777). The Examiner rejected claims 2 and 11-13, 15 and 17 under 35 U.S.C. 102(b) as being anticipated by Van Geelen (US 6,080,642). The Examiner rejected claims 14 and 18 under 35 U.S.C. 103(a) as being unpatentable over Burk or Van Geelen in view of Paisley (US 2002/0090454). As amended, Applicant respectfully submits that all pending claims are allowable over the Prior Art figure because all claims require a process chamber base with rotationally drivable substrate holders and a rotationally drivable substrate holder carrier, and a central region of the process chamber base that is rotationally drivable relative to substrate holder carrier.

Hey does not anticipate the claimed invention because Hey discloses a spider 100 with stalks 106,108 that transfer wafer 180 sequentially over multiple susceptors 30. (col. 4 l. 17-29). The stalks 106,108 lift a wafer 180 from a first susceptor 30 and transfer the wafer to a second susceptor 30. (col. 7 l. 14-21) When the stalks deposit the wafer 180 they fit into grooves 250, 252 (shown in figure 5) formed in susceptor 30. (col. 7 l. 25-28) The wafer 180 undergoes processing from shower head 32. (col. 7 l. 63-66). Hey does not teach or suggest that susceptor 30 rotates during processing. In fact that would be impossible. While processing, Hey suggests that stalks 106,108

remain in grooves 250, 252. Thus, the susceptor couldn't rotate without breaking the stalks 106, 108. Further, Hey does not disclose that susceptors 30 are disposed around a substrate holder carrier, let alone one that is rotationally drivable. The susceptors in Hey are independent units. Finally, Hey does not teach a central region that is opposite and rotationally drivable in relation to a central gas inlet. In Hey, each gas inlet is a separate shower head 32 individually located over each susceptor 30. Manifold 50 merely acts as an interconnect to showerheads 32. For the above stated reasons, Applicant respectfully submits that Hey does not anticipate the claimed invention.

Burke does not anticipate the claimed invention because Burke discloses a rotatable susceptor assembly 86 with a central aperture 92 and cavities 88 to receive a wafer holder 90 and rotate the wafer holder. (col. 3-4, l. 66-4). Burke fails to disclose a central region to susceptor 86 that is rotationally driven relative to the rotationally driven susceptor 86. In fact, there isn't a central region to drive in Burke because Burke discloses that the central region is a hole. For the above stated reason, Applicant respectfully submits that Burke does not anticipate the claimed invention.

Van Geelen does not anticipate the claimed invention because Van Geelen discloses a support plate 2 that rotates about its axis with wafer portions 2A that rotate about their own axis. (col. 4 l. 22-28). However, Van Geelen does not disclose that the central region of support plate 2 is capable of being rotationally driven relative to rotationally driven support plate 2. When support plate 2 is rotated in Van Geelen, the central region is rotated with support plate 2. For the above stated reason, Applicant respectfully submits that Van Geelen does not anticipate the claimed invention.

Applicant agrees with the Examiner that Paisley does not anticipate the claimed invention. Paisley discloses a carrier plate 130 with wafers 20 loaded on it that rotate. (par. [0034]). Paisley does not disclose that the wafers 20 rotate within wafer pockets 132 or that the central region of carrier plate 130 is capable of being rotationally driven

relative to rotationally driven carrier plate 130. For the above reasons, Applicant agrees with the Examiner that Paisley does not anticipate the claimed invention.

Further there is no suggestion or motivation to modify or combine these references in accordance with the claimed invention.

First, since none of these references disclose a process chamber base with a central region that is rotationally drivable relative to the substrate holder carrier, combining these references would not yield such a configuration. Van Geelen, Burk, and Paisley all describe rotating process plates with wafers mounted on to them. However, the central regions of these plates are not rotationally driven relative to the rotationally driven plates. Van Geelen and Paisley disclose central regions that rotate with the plates. Burk discloses a plate without a central region to rotate. Finally, Hey does not even disclose a process plate but merely a mechanism that transfers wafers from susceptor to susceptor.

Second, even if these references were to be combined, they still would not arrive at the claimed invention. Applying Burk to Van Geelen would simply place a hole in the process plate of Van Geelen. Applying Van Geelen to Burk would remove the hole. Applying either of these references to Paisley would merely provide for a wafer pocket within which wafers rotated. Applying Paisley to Van Geelen or Burk would remove the ability of those plates to individually rotate the wafers. Finally applying any of these references to Hey would create a spider system that transferred plates of wafers from one susceptor to the next. These combinations would still not render a central region that is capable of being rotationally driven relative to a rotationally driven process plate.

Third, none of these references provide any suggestion or motivation to modify these references in accordance with the claimed invention. None of these references address the problem of inhomogeneities of the surface temperature of the center of a process plate. Further, none of these references suggest that it would be beneficial to devise a system which would average out the temperature gradient emanated from the

Page 9
Serial No. 10/754,817
Response to Official Action

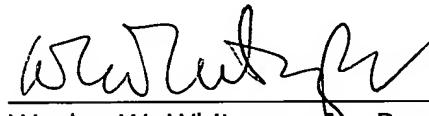
center. Finally, none of these references suggest that the center region can be differentially driven relative to the remainder of the process plate.

For the above stated reasons these references fail to render the claimed invention obvious.

In view of the foregoing amendments and remarks, it is respectfully submitted that all of the claims currently pending in the application are now in condition for allowance. Reconsideration and notice to that effect is earnestly requested.

Respectfully submitted,

December 8, 2005


Wesley W. Whitmyer
Wesley W. Whitmyer, Esq., Registration No. 33,558
Attorneys for Applicants
ST.ONGE STEWARD JOHNSTON & REENS LLC
986 Bedford Street
Stamford, CT 06905-5619
203 324-6155